Space Weather Forecast

Issued on Thursday, 11 April 2024 at 01:17 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Increasing solar activity likely in the coming days. Slight chance of G1 Minor geomagnetic storms later in the period given expected fast solar wind influence.

Analysis of Space Weather Activity over past 24 hours.

Solar Activity: Solar activity is Low. There are five sunspot regions on the visible disc. The largest of these in the northwest, has seen continued fading of any trailing spots. One new small and simple spot region has appeared in recent hours in the northeast, with another small region being numbered.

No Earth-directed coronal mass ejections (CMEs) were observed in available imagery. However the current visible disc is heavily populated by filaments (arcs of plasma) - perhaps rendered more durable by the lack of flares to de-stabilise them - however there are signs of a recent lift off or destabilisation from a reasonably large filament in the northern disk and imagery will be monitored closely for signs of an associated CME.

Solar Wind / Geomagnetic Activity: Solar wind parameters were indicative of an ongoing minor fast solar wind stream influence. Solar wind speeds were at slightly elevated levels, generally between 420-480 km/s. Total Interplanetary Magnetic Field (IMF), Bt, was weak. The important north-south component, Bz, varied weakly, with erratic variations between directions. The phi angle was mainly positive (away from the Sun).

Resultant Geomagnetic activity was Quiet to Unsettled.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to remain generally Low, but with an increasing chance of Moderate activity into the period with the potential return of multiple Ex-sunspot regions over the eastern solar horizon.

Solar Wind / Geomagnetic Activity: No Earth-directed coronal mass ejections (CMEs) feature in the forecast. Easing fast solar wind influence expected through Days 1-2 (11-12 Apr) with speeds persisting at slightly elevated levels at first before easing to normal background. Further solar wind enhancement is possible into Days 3 and 4 (13-14 Apr) with winds perhaps increasing to slightly elevated or elevated levels once again.

Geomagnetic activity is expected to be Quiet to Unsettled with a chance of isolated Active intervals early on Day 1 (11 Apr). Mainly Quiet activity is then expected Day 2 (12 Apr). Activity likely increasing to become more generally Unsettled with Active intervals likely and a slight chance of G1 Minor Geomagnetic storm intervals into Days 3 and 4 (13-14 Apr).

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Energetic Particles / Solar Radiation: Solar radiations expected to persist at background levels during the period given the lack of appropriate active sunspot regions on the disc.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	20	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	20	30	30
Very Active	R3 to R5 X	No	1	1	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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